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THE Lick Observatory has just sent out Plates 2 to 5 of its *Observatory Atlas of the Moon*, finely reproduced in photogravure, on a scale of 38 inches to the lunar diameter, from the negatives obtained with the great refractor. The publication of this valuable series of photographs was made possible by the generosity of a citizen of New York, Mr. W. H. Law.

IN the *Monthly Notices* of the Royal Astronomical Society for January Mr. W. F. Denning contributes a catalogue of the real paths of 107 meteors, observed by himself and others in England during the last ten years. The averages are:

Height at first appearance...	73.6 miles	(106 meteors)
Height at disappearance.....	45.3 "	(107 meteors)
Length of path.....	62.1 "	(105 meteors)
Velocity per second.....	26.9 "	(58 meteors)

The greatest height of any well-observed meteor was 126 miles. In the above averages no distinction was made between fireballs and shooting-stars.

IN the same number of the *Notices* Professor G. von Neissl, of Brünn, contributes a list of the real paths of 100 large meteors which have been authentically observed, chiefly in the last two decades. For these the average height when first seen was 91 miles. No. 77 of the list was visible from Servia to France, traveling in a real path of 1770 miles, from the hardly credible elevation of 483 miles to that of 115 miles. From a comparison of the catalogues of von Neissl and himself, Denning shows several instances of the recurrence of large meteors from the same radiant, indicating that they belonged to the same swarm.

E. B. F.

SCIENTIFIC NOTES AND NEWS.

MISS ALICE BACHE GOULD has given \$20,000 to the National Academy of Sciences as a memorial to her father, the great astronomer, B. A. Gould. It will be known as the Gould fund and the income will be used to promote researches in mathematics and astronomy.

SIR HENRY THOMPSON has presented the Royal Observatory at Greenwich with a telescope said to be the most powerful instrument at present existing for the prosecution of astronomical research by means of photography. The photographic refractor has an object glass 26 inches in diameter. The photographs it will take will be on twice the scale of 2 mm. to one minute of arc, and its short focal length gives it great light-gathering power. The instrument now mounted at Greenwich has been in course of construction by Sir Howard Grubb, of Dublin, during the last three years.

THE Royal Observatory at Bonn has received from the state a preliminary appropriation of 30,000 Marks, which will ultimately be increased to 90,000 Marks, for the construction and mounting of a refracting telescope of medium size.

SIR WILLIAM FLOWER's term of office as Director of the Natural History Departments of the British Museum has been extended for three years from the expiration of his retirement date under the age regulation of the Civil Service.

THE American Philosophical Society, Philadelphia, will hold a conversazione in honor of Sir Archibald Geikie on the evening of May 7th. Sir Archibald Geikie will make a communication on recent geological work in the Hebrides and Faroe Isles.

THE Council of the British Medical Association has conferred the gold medal of the Association on Mr. C. G. Wheelhouse and Sir Walter Foster.

THE Cothenius medal, *Leopold Carolinische Akademie der Naturforscher*, has this year been awarded to Dr. G. Quincke, professor of physics at Heidelberg.

DR. P. GRÉHANT, professor of physiology in the Paris Museum of Natural History, has been awarded 4,000 francs by the French government to promote his researches on the applications of physiology to hygiene.

MR. J. H. PRATT, instructor of mineralogy in the Sheffield Scientific School of Yale University, has accepted the post of mineralogist in the North Carolina Geological Survey.

M. PICOU was elected president and M.

Gosselin secretary of the *Société Internationale des Electriciens* at the last meeting of the Society held on April 7th.

DR. TRAILL GREEN, emeritus professor of chemistry at Lafayette College, died at Easton, Pa., on April 29th, at the advanced age of eighty-four years. Dr. Green was first made professor in Lafayette College sixty years ago, and during that time took an important part in the building-up of the college, having been dean of its scientific department and having given it an astronomical observatory. He made many contributions to medicine and to other sciences.

WE regret further to record the death of Miss Emily L. Gregory, professor of botany at Barnard College and the author of valuable contributions to botany, and also the deaths of Dr. de Marbaix, founder of the Bacteriological Institute at Boma; of Dr. Jakob Breitenlohner, professor of meteorology and climatology in the Vienna School of Agriculture; of Dr. Sinku Sakaki, professor of psychiatry in the University of Tokio, and of Dr. Victor Lemoine, formerly professor of the Medical School at Reims, and known for his contributions to comparative anatomy and paleontology.

LONGMANS, GREEN & CO. are about to publish a new and revised edition of Sir John Evans' 'Ancient Stone Implements, Weapons and Ornaments of Great Britain,' which has long been out of print.

THE London *Academy* is publishing a series of portraits of eminent writers. The issue of April 10th contained an admirable reproduction of a photograph of Darwin, by Mrs. J. M. Cameron.

THE British government authorities have presented Dr. Nansen, in recognition of his services in scientific exploration, with a complete set of the Challenger Reports. This is said to be the only case in which this great publication, extending to fifty volumes quarto, has been presented to an individual.

DR. CARL LUMHOLTZ, the Norwegian anthropologist, has returned to New York after having spent three years in the interior of Mexico in the interests of the American Museum of

Natural History. He has secured valuable collections and much information regarding the aboriginal tribes.

It is stated in *Nature* that at the last meeting (April 14) of the Russian Geographical Society, Baron Osten Sacken read a telegram which he had received from Sven Hedin, the well-known Swedish traveler in Central Asia, announcing that he had crossed Tibet (Northern Tibet) by following a route which lies somewhat to the south of General Pyerstoff's route; during that journey he discovered 23 new salt lakes, four of which are of considerable size. Notwithstanding the great difficulties of the journey, and the loss of 44 beasts of burden out of 50, all collections are safe. From Tibet, Sven Hedin went through Mongolia to Pekin, and towards the end of May he expected to be in St. Petersburg.

M. AUGUSTIN FALCONZ has given the University of Lyons 100,000 francs to be used for biennial prizes, one for each of the four faculties of the University.

A CHAIR of physical geography has been established in the faculty of sciences in the University of Paris, and M. Vélain has been appointed the first incumbent.

A MEMORIAL proposing a physical laboratory for India signed by Lord Kelvin, Lord Lister and other leading British men of science has been presented to the Secretary for India. The memorial is as follows:

"We, the undersigned, interested in the progress of physics, desire respectfully to draw your lordship's attention to the great importance which we attach to the establishment in the Indian Empire of a central laboratory for advanced teaching and research in connection with the Presidency College, Calcutta, the most important educational institution under the Government of India. We believe that it would not only be beneficial in respect of higher education, but also that it would largely promote the material interests of the country, and we venture to urge on you the desirability, therefore, of establishing in India a physical laboratory worthy of the great empire."

PROFESSOR D. T. MACDOUGAL, in a letter to the *Botanical Gazette*, on the Tropical Laboratory Commission, states that Dr. J. E. Humphrey, accompanied by a number of advanced students in zoology from the Johns Hopkins

University, will carry on some investigations in the vicinity of Port Antonio, Jamaica, during the ensuing season, and that he has agreed to cooperate with the Commission in the examination of the island. In the arrangement of plans for the work of the Commission provision will be made for a repetition of a portion of the tour of investigation during the coming winter, in order to appreciate more fully the climatic possibilities of the more promising localities. The *Journal of Botany*, in an article expressing cordial approval of the undertaking, advocates one of the Lesser Antilles as the site of the laboratory, urging that a site in Mexico would be a hindrance to cooperation on the part of botanists in Great Britain on account of the length of the journey.

THE Friday evening meetings of the Royal Institution of Great Britain were resumed on April 30th, when Professor J. J. Thomson gave a discourse on 'Cathode Rays.' Succeeding discourses will probably be given by Professor Harold Dixon, the Right Hon. Lord Kelvin, Professor H. Moissan, Mr. W. H. Preece, Mr. William Crookes and others. The Tyndall lectures for 1897 are being given by Dr. Tempest Anderson, his subject being 'Volcanoes.'

THE Royal Society will hold the first of its two annual conversaziones on the evening of May 19th.

THE ninety-fifth anniversary of the founding of the Zoological Station at Naples was celebrated on April 14th. Addresses were made by Professor Todaro, representing the University of Rome and the Accademia dei Lincei by Dr. Eisig, of the Station; by Professor Waldeyer, representing the Berlin Academy of Sciences, and by Professor His, of Leipzig. Professor Dohrn was presented with the freedom of the city of Naples and the Grand Cordon of the Crown of Italy. After the German Ambassador had made a few remarks Professor Dohrn himself gave an account of the origin and progress of the laboratory whose work has been such an important factor in the progress of biological investigation.

SEVERAL members of the British Royal Commission on Tuberculosis, including Sir Herbert Maxwell, M. P. (Chairman), Mr. Harcourt

E. Clare, Mr. John Speir and Mr. T. M. Legge (Secretary), accompanied by Professor M'Fadyean, started on April 22d for Brussels, Cologne, Berlin and Leipzig, in order to investigate the methods adopted on the Continent for dealing with tuberculosed meat. The Belgian and German Governments have made arrangements to aid the Commissioners in the investigations. The Commissioners expect to return about the end of the second week in May.

INVITATIONS have been sent for the sixty-fifth annual meeting of the British Medical Association, to be held at Montreal. The program is as follows: August 31st, 12 a. m.—Services in the English Cathedral. 2:30 p. m.—Windsor Hall, opening ceremonies and addresses of welcome. 3 p. m.—Address by the President-elect, T. G. Roddick, M.D., M.P. 4 p. m.—Garden parties, excursions around the mountain, etc. 9 p. m.—Soirée at Laval University. September 1st, 1. p. m.—McGill University, openings of sections (eleven in all). 3 p. m.—Windsor Hall: Address in medicine, by Dr. Wm. Osler. 4. p. m.—Excursion down the St. Lawrence, etc. 9. p. m.—Sohmer Park, conversation and dance. September 2d, 9:30 p. m.—McGill University, sectional meetings. 1:30 p. m.—Lunch on the mountain. 3:30 p. m.—Windsor hall, address in surgery, by Mr. T. Mitchell Banks. 4:30 p. m.—Excursion across the Island, etc. 7:45 p. m.—Annual dinner of the Association, Windsor Hall. September 3d, 9:30 a. m.—McGill University, sectional meetings. 3 p. m.—Windsor Hall, address in public medicine by Herman M. Biggs and concluding general meeting. 4:15 p. m.—Excursion to St. Anne's and down the Lachine Rapids. 9 p. m.—Soirée at McGill University. September 4th.—Excursion to Ottawa, Quebec, Kingston, St. Agathe, Lake Memphremagog, etc.

CAMBRIDGE UNIVERSITY has made a slight provision for the study of experimental psychology, but the science is very inadequately represented in Great Britain as compared with Germany, the United States and France or even with countries such as Russia, Switzerland, Italy, Belgium and Denmark. We are glad to learn that an effort is now being made to intro-

duce the subject into University College, London. A committee, including Mr. Francis Galton, Professor Carl Pearson, Professor C. A. Schäffer and others, has been formed and subscriptions are invited for the purchase of apparatus and the establishment of a lectureship.

IN an interesting historical sketch of the University of Minnesota, Professor C. W. Hall describes an important adjunct of the scientific work of the University—the Geological and Natural History Survey of the State. This was organized in 1872 and placed under the direction of the Board of Regents. The original cost of this work was \$1,000 per year; this was soon increased to \$2,000, and in 1875, and subsequently, 38,643 acres were turned over to the Regents to be disbursed in accordance with the law ordering the Survey. This land, at the minimum price of \$5.00 per acre, for which it could be sold, will eventually enable the Regents to realize over \$200,000. The cash appropriations which the State has at various times voted for the maintenance of this work amount at date to \$50,000, not including cost of printing. The Survey is comprehensive in its scope. The fields of investigation named in the original act are geology, botany, zoology and meteorology. Two maps, a geologic and topographic, were also provided for; the latter, on approval, to become the official map of the State. A museum was also contemplated, which should exhibit to the people of the Commonwealth, in an orderly and scientific way, its natural resources as discovered by the Survey. The geological exploration of the State was first prosecuted. Botany, zoology, meteorology and topography are to follow in order, unless economy and efficiency can be secured by joint operations. The results of these investigations thus far available are to be found in a series of annual reports covering almost a quarter of a century of geologic work; three volumes on the final report of the geology of State; two brief reports of the State Zoologist, accompanied by a study of the birds of Minnesota, by Dr. P. L. Hatch, and a synopsis of the Entomostraca of Minnesota, by C. L. Herrick and C. H. Turner; one report of the State Botanist, containing an exhaustive review of the Metaspermæ of the Minnesota river valley;

a series of bulletins, containing geological, botanical and zoological papers, besides many scientific papers from less comprehensive fields of study.

THE *Electrical World* reports on a recent communication by M. d'Arsonval to the Société Internationale des Electriciens concerning the therapeutic and physiological effects of high frequency currents. He showed the powerful inductive effects which can be obtained with these currents. A striking experiment consists of placing three lamps in tension and allowing the current to pass through the body. These currents cause no sensations, and a man placed in a circuit does not feel that he is traversed by the currents which brilliantly illuminate the lamps. The principal results of this electrification are an augmentation of the oxidations in the organism and an increase in the production of heat. A subject who, under ordinary conditions, eliminates 17 to 21 liters of carbonic acid per hour throws off 37 liters after having been submitted to this action. High-frequency currents do not act solely upon the surface of the body, but also profoundly upon the interior. All of these results have been obtained upon a number of subjects by MM. Apostoli and Charlin. M. d'Arsonval cited, in closing, the action exercised upon microbes and bacteria by these currents. The microbes and bacilli are modified, and the toxins are killed and transformed to vaccine. MM. d'Arsonval and Charlin hope by this method to arrive at a direct treatment for the interior of the bodies of patients suffering with zymotic disease, and experiments to this end have begun.

WE are extremely glad to note that the tariff bill, as amended by the Senate Finance Committee, includes the following additions to the free list:

Books, maps, music, engravings, photographs, etchings and charts, printed more than twenty years before the date of importation; all hydrographic charts and scientific books devoted to original scientific research, and publications issued for their subscribers by scientific and literary associations, or publications of individuals for gratuitous private circulation, and public documents issued by foreign governments.

Books printed exclusively in foreign languages for the blind.

Books, maps, etc., especially imported, not more than two copies in any one invoice, for the use of any society or institution established solely for religious, philosophical, educational, scientific or literary purposes, or for the encouragement of the fine arts, or for the use of any college, school or public library, and not for sale.

Paintings, original drawings and sketches, engravings and statuary, not otherwise provided for; paraffine, philosophical and scientific apparatus for schools, libraries and societies; professional books, implements and instruments, and tools of trade or occupation in the actual possession at the time of persons arriving in the United States; regalia and gems, statues, casts of marble, bronze, or alabaster, where specially imported in good faith for the use of any society, school or library.

UNIVERSITY AND EDUCATIONAL NEWS.

THE will of the late John Foster, of Boston, gives \$120,000 to public purposes, including \$10,000 to the Massachusetts Institute of Technology.

THE will of the late Charles Bell, of Springfield, Mass., bequeaths \$7,000 to Wellesley College for a scholarship fund.

BROWN UNIVERSITY receives \$10,000 by the settlement of the will of the late Mrs. Maria L. Benedict, of Providence.

PROFESSOR H. L. HUTCHIN, Dean of the Law Department of the University of Michigan, has been offered the presidency of the University during President Angell's absence in Turkey.

MR. C. H. WARREN has been appointed instructor in mineralogy in the Sheffield Scientific School of Yale University.

THE Spanish universities and other educational institutions under state control have just been thrown open to foreigners by royal decree. By the new ordinance foreigners are admitted to the right of matriculation, study and examination in all educational establishments under the Spanish government, and are entitled to take degrees in the universities.

IN announcing last week the promotion of Professor Albert Bushnell Hart, of Harvard University, it was accidentally stated that his chair was physics; it should, of course, have been history.

DISCUSSION AND CORRESPONDENCE.

TYPE SPECIMENS IN NATURAL HISTORY.

A RECENT number of SCIENCE* contains an article by Mr. Charles Schuchert, entitled 'What is a Type in Natural History?' The title is misleading, for, instead of discussing type forms or types of groups, Mr. Schuchert confines his attention to type specimens, and chiefly to the names by which such specimens may be designated, in which direction he shows remarkable fertility of resource. In view of these facts, and of the additional circumstances that the subject is approached from the standpoint of the student of fossils, his paper might have been better described under some such heading as 'Suggestions for the Multiplication of Type Specimens in Paleontology.'

Mr. Schuchert revives several obsolete terms, such as *paratype* and *metatype*, which have never been used, so far as I am aware, even by the man who proposed them, and adds a number of his own invention, such as *genotype*, *holotype*, *hypotype*, *plastotype* and *hypoplastotype*. These may be taken as mild examples of a prevalent and apparently incurable form of mania which busies itself in burdening science with a useless and formidable terminology. The most serious objection to such terms is the discouraging effect they have on students, for they wall in a subject with a barrier that few have the courage to assail. In my own case I am bound to confess that, although the greater part of my life has been spent in the study of animals and plants, I am to-day unable to read half the literature on these subjects, because of the multiplicity of technical terms by which the author's meaning is made unintelligible. Life is too short and too precious to be fritted away in memorizing such a disheartening and ever increasing mass of terminology.

My reasons for replying to the article in question are, first, to make the occasion an excuse for filing a protest against the unlimited coinage of new terms, and second, to assure the amateur and beginner that in descriptive zoology and botany these particular terms are wholly unnecessary. In practice the best systematic

* SCIENCE, N. S., No. 121, pp. 636-640, April 23, 1897.